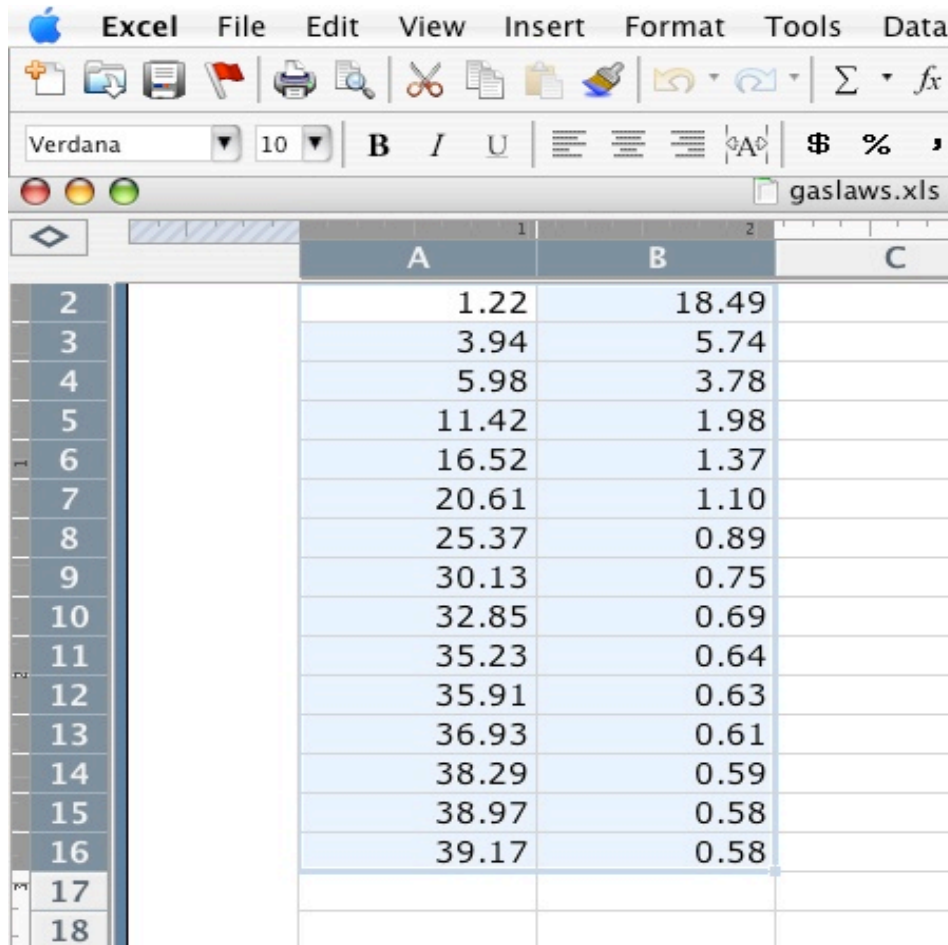


HOW TO GRAPH DATA ON EXCEL

All of our chemistry data will use the same type of graph on Excel. Follow these instructions to plot your data, add a line of best fit, and get an equation for the line!

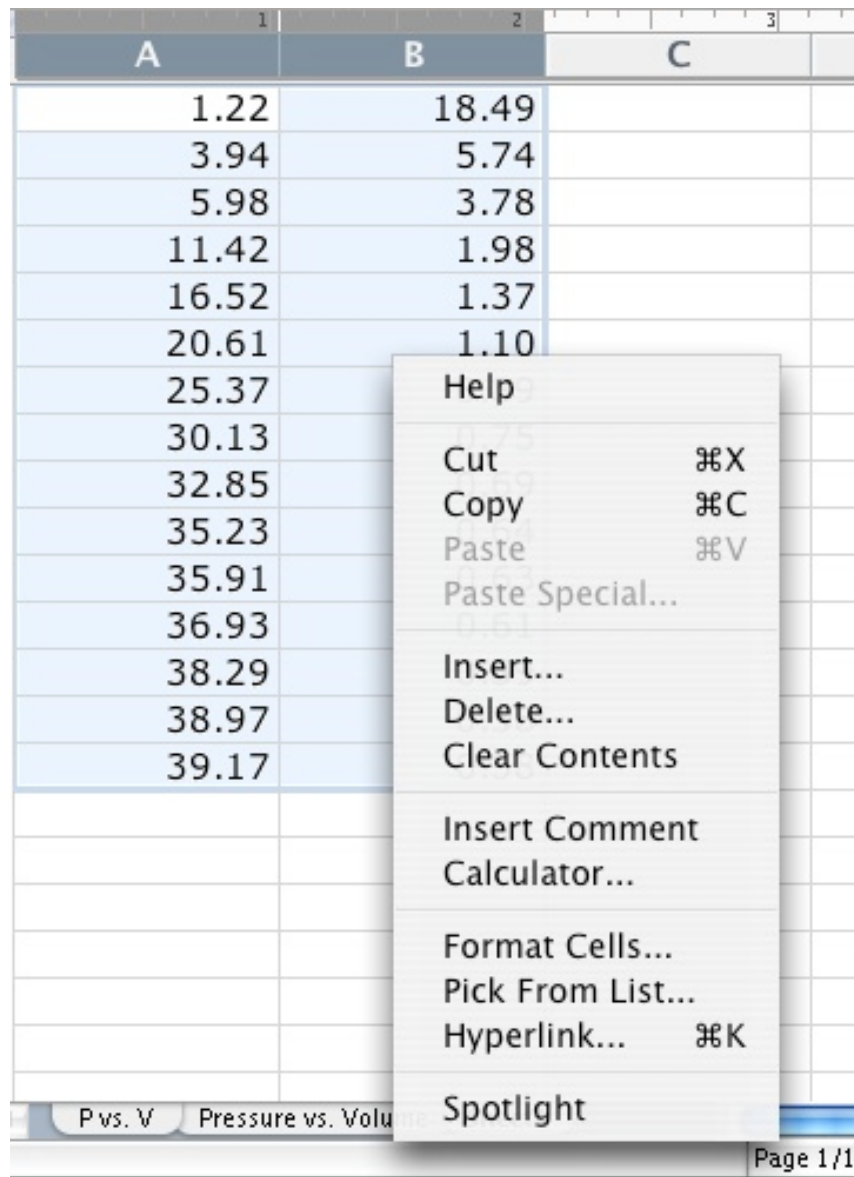
1. Open Microsoft Excel (the big green "X") in the Apple Dock.
2. Type in your data, with your X axis data (independent variable) in the left-hand column, and your Y axis data (dependent variable) in the right column. Highlight your data.



The screenshot shows the Microsoft Excel application window. The menu bar includes Excel, File, Edit, View, Insert, Format, Tools, and Data. The toolbar contains various icons for file operations and editing. The font settings are Verdana, size 10. The spreadsheet has columns A, B, and C, and rows 2 through 18. The data is as follows:

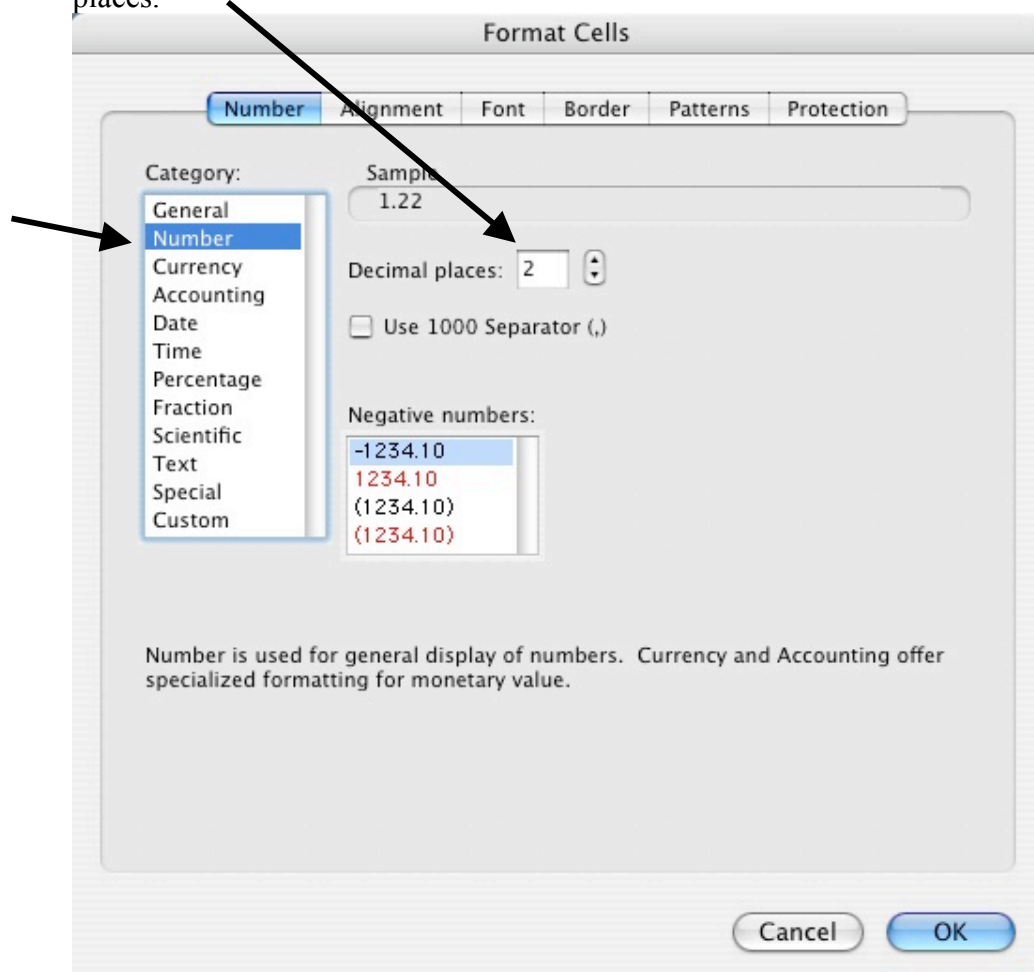
	A	B
2	1.22	18.49
3	3.94	5.74
4	5.98	3.78
5	11.42	1.98
6	16.52	1.37
7	20.61	1.10
8	25.37	0.89
9	30.13	0.75
10	32.85	0.69
11	35.23	0.64
12	35.91	0.63
13	36.93	0.61
14	38.29	0.59
15	38.97	0.58
16	39.17	0.58
17		
18		

3. Place your cursor over one of the data cells. Control click. In the drop-down menu that appears, choose "Format Cells."

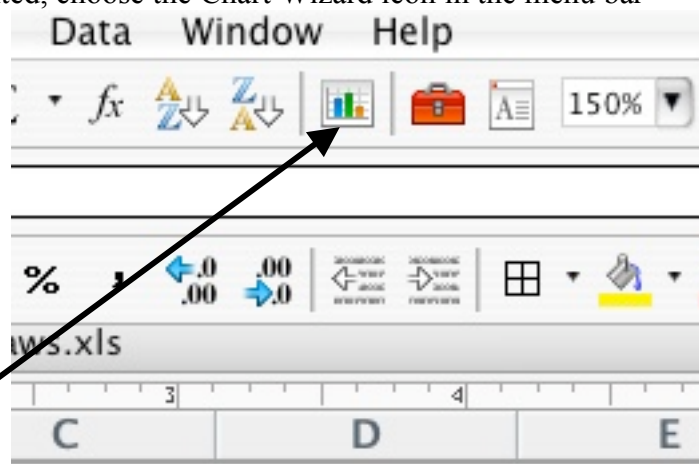


Then click on the “Number” tab, and choose “Number” in the scroll-down menu. Type in “2” decimal

places.



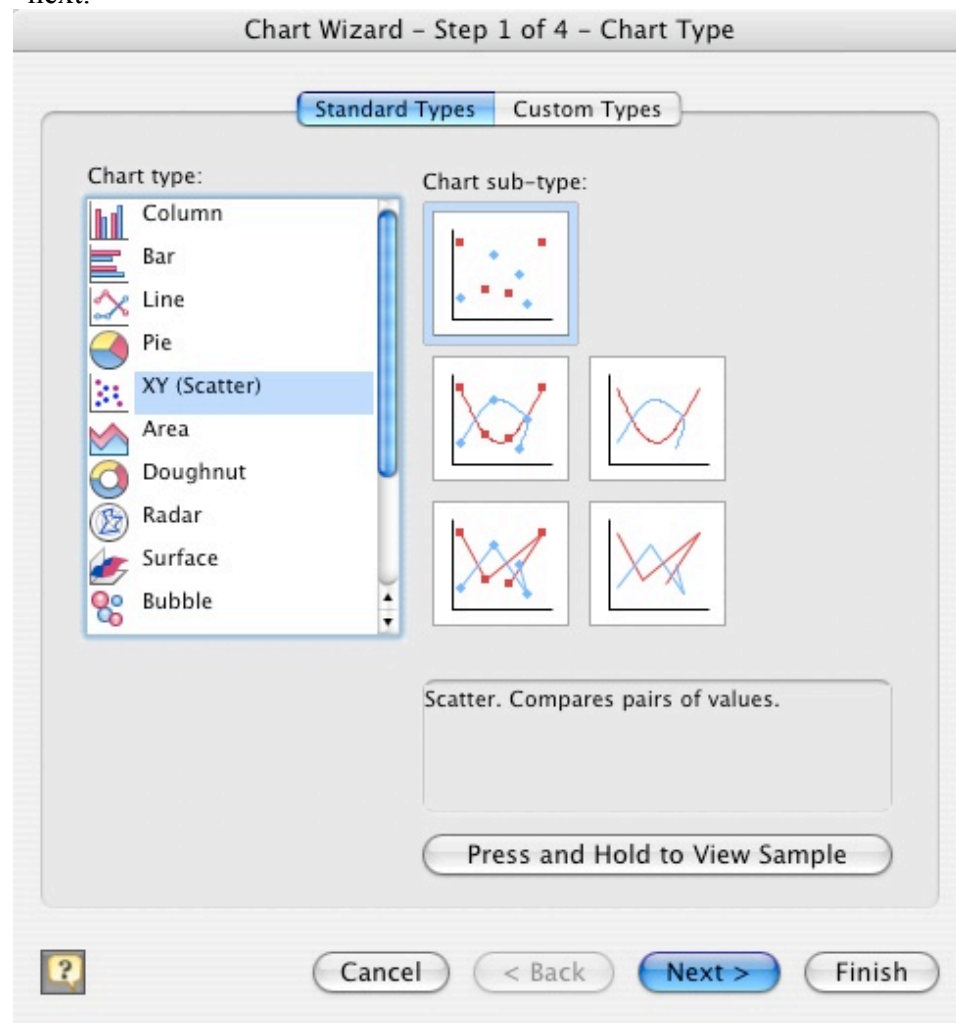
4. With data still highlighted, choose the Chart Wizard icon in the menu bar



(looks like a bar graph).

5. Choose "Scatterplot" as your type of graph, and choose the highlighted version that has no line on it. Click

“next.”



6. At Step 2 (Source Data), click “Next.”

Chart Wizard – Step 2 of 4 – Chart Source Data

Data Range Series

Data range:

Series in:

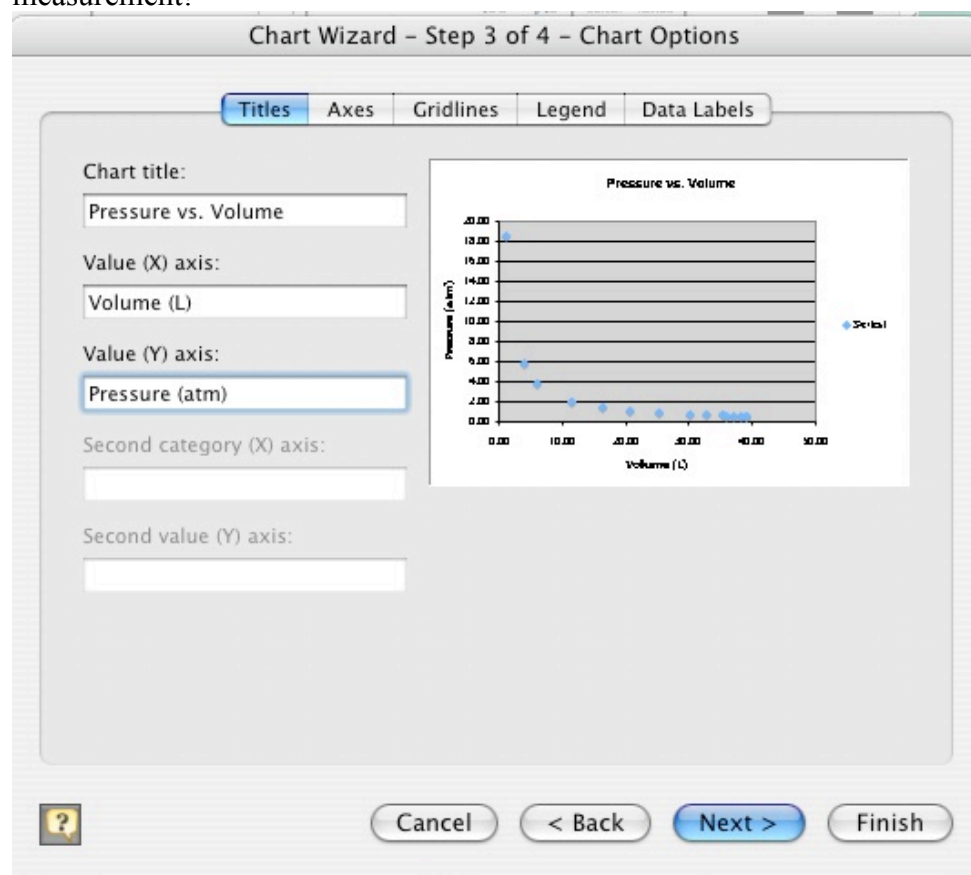
☐ Rows

☒ Columns

Cancel < Back Next > Finish

7. On Step 3 (Chart Options), title your graph (your dependent variable vs your independent variable), and label your X and Y axes, making sure you include units of


measurement!

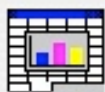


8. Click “next,” and on Step 4 (Chart Location), save graph as a “New Sheet.” Change the name from “Chart 1” to a title that describes your graph. Click on “Finish.”

Chart Wizard – Step 4 of 4 – Chart Location

Place chart:

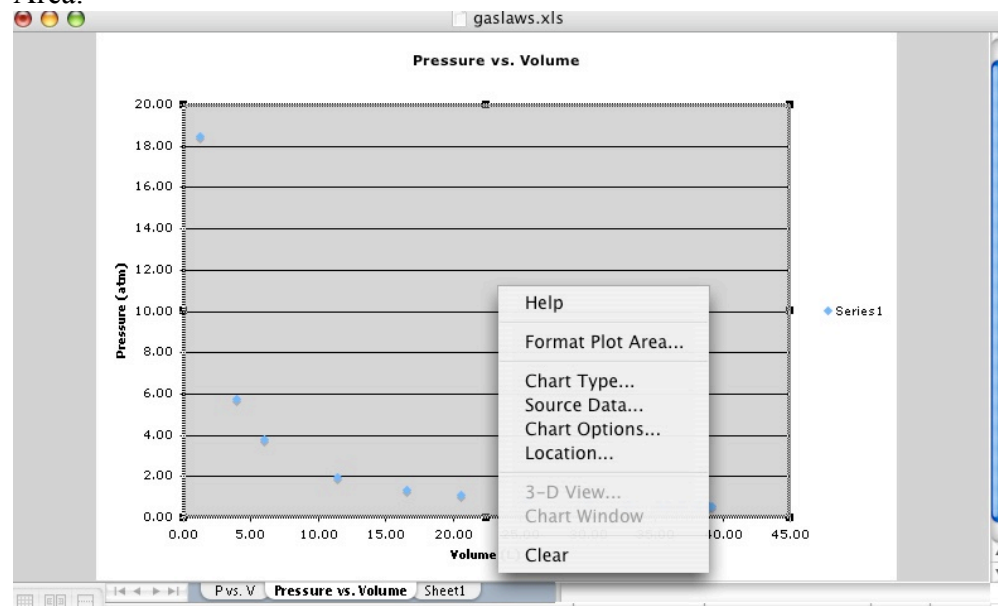
 ☒ As new sheet: P vs. V

 ☐ As object in: Sheet1

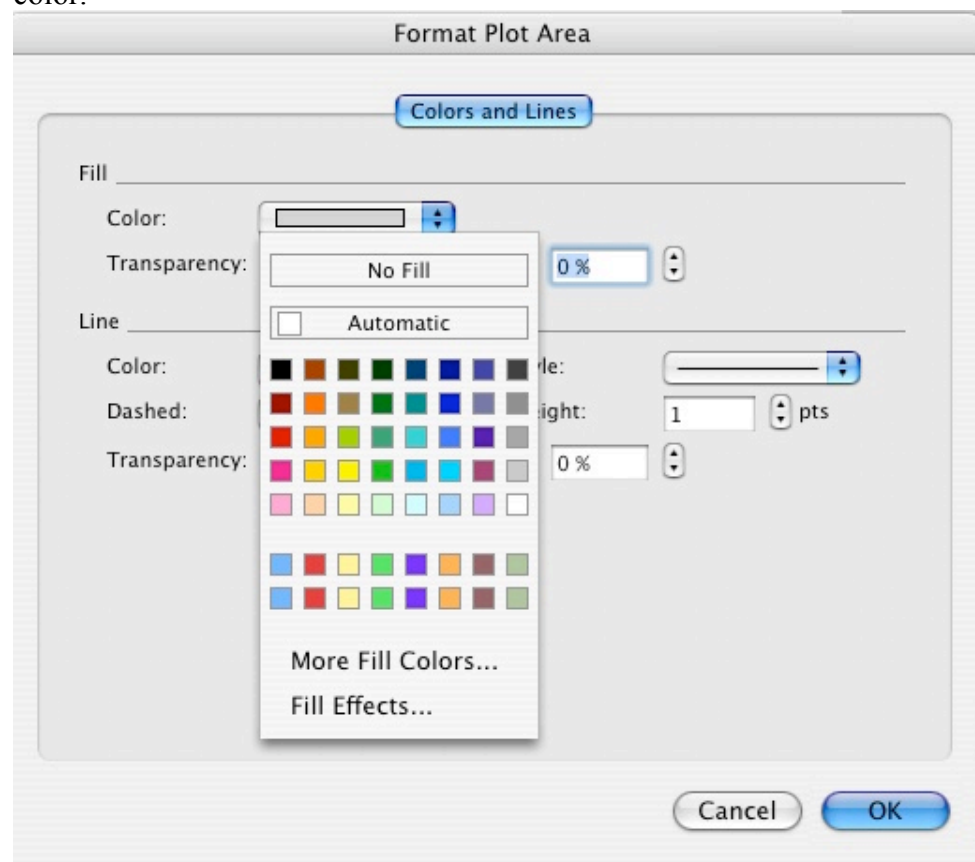
Cancel < Back Next > Finish

9. Now your points are plotted, but you need to make some modifications to make your graph printer-friendly, as well as add a trendline and equation. First, place your cursor on the plot area and Control-click. On the drop-down

box, choose “Format Plot Area.”

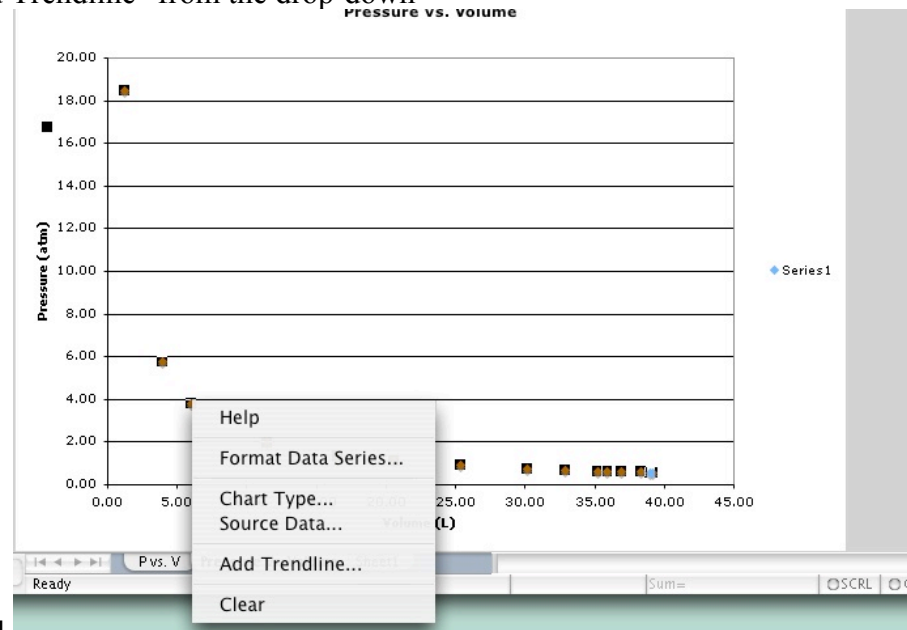


10. Choose the “Colors and Lines” tab and click on “No Fill” under Fill color.



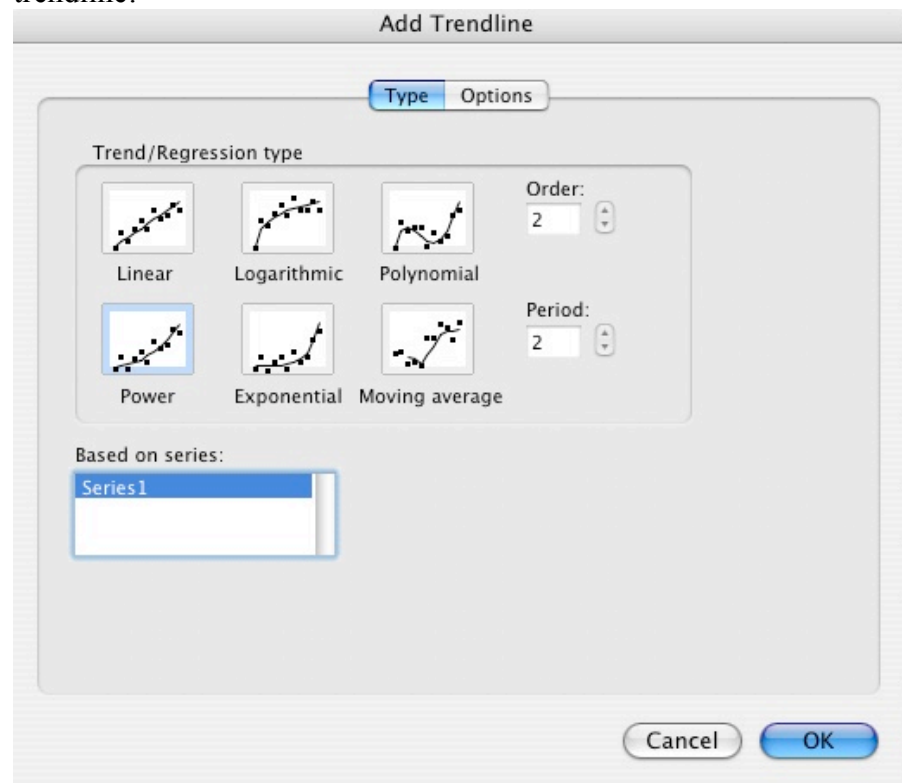
11. Now, you want to add a trendline. Put your cursor directly over a data point, so that the point coordinates pop up. Control-click on this point and choose

“Add Trendline” from the drop-down



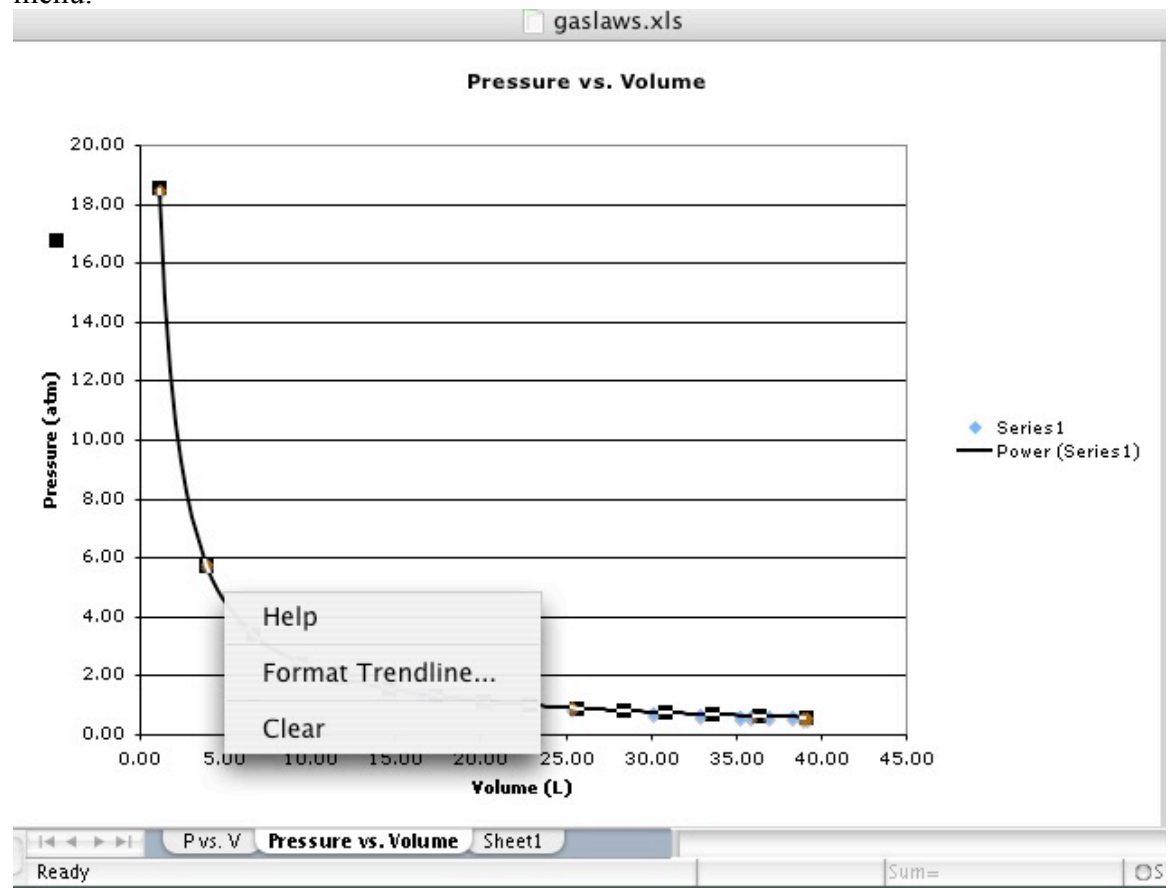
menu.

12. For Trendline Type, choose the type of line that appears to best match the pattern your points make. This may be trial-and-error – you may have to do this more than once to find the best-fitting trendline!



13. When you find a trendline that fits well, place your cursor over the line and choose “Format Trendline” from the drop-down

menu.

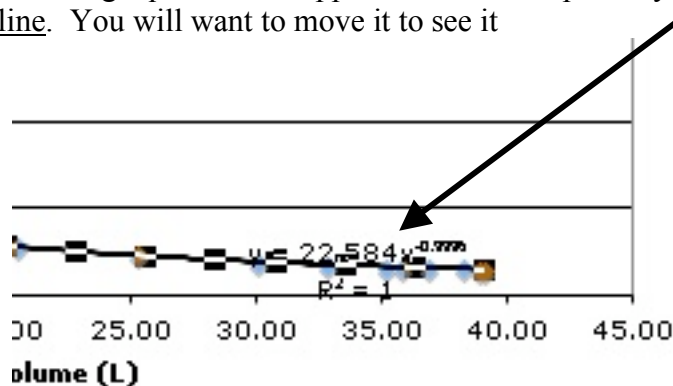


14. Click on the "Options" tab, and click on the "Display equation on chart" and "Display R-squared value on chart" at the bottom of the

The figure shows the "Format Trendline" dialog box in Excel, with the "Options" tab selected. The "Trendline name" section has the "Automatic: Power (Series1)" radio button selected. The "Forecast" section has "Forward" and "Backward" both set to 0 units. The "Set intercept" checkbox is unchecked, with the value 0. The "Display equation on chart" and "Display R-squared value on chart" checkboxes are both checked. The "Cancel" and "OK" buttons are at the bottom right.

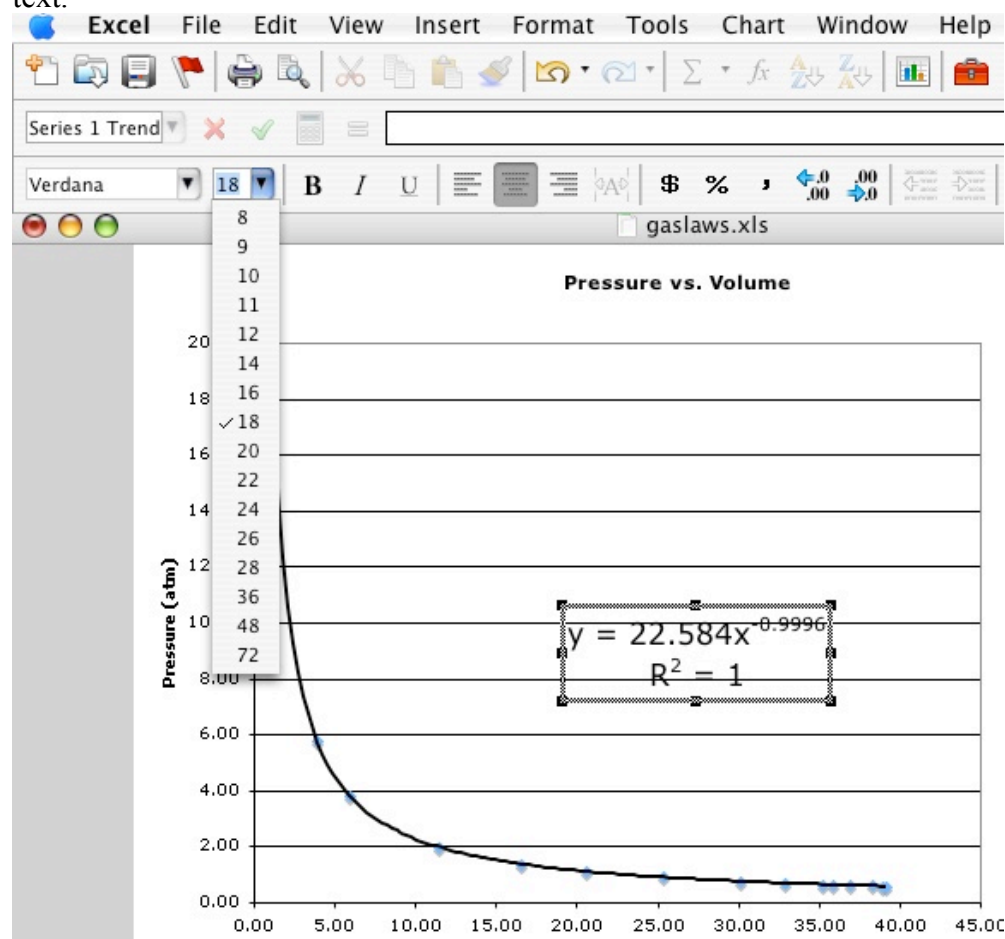
window.

15. Your resulting equation will appear as small text partially hidden behind the trendline. You will want to move it to see it



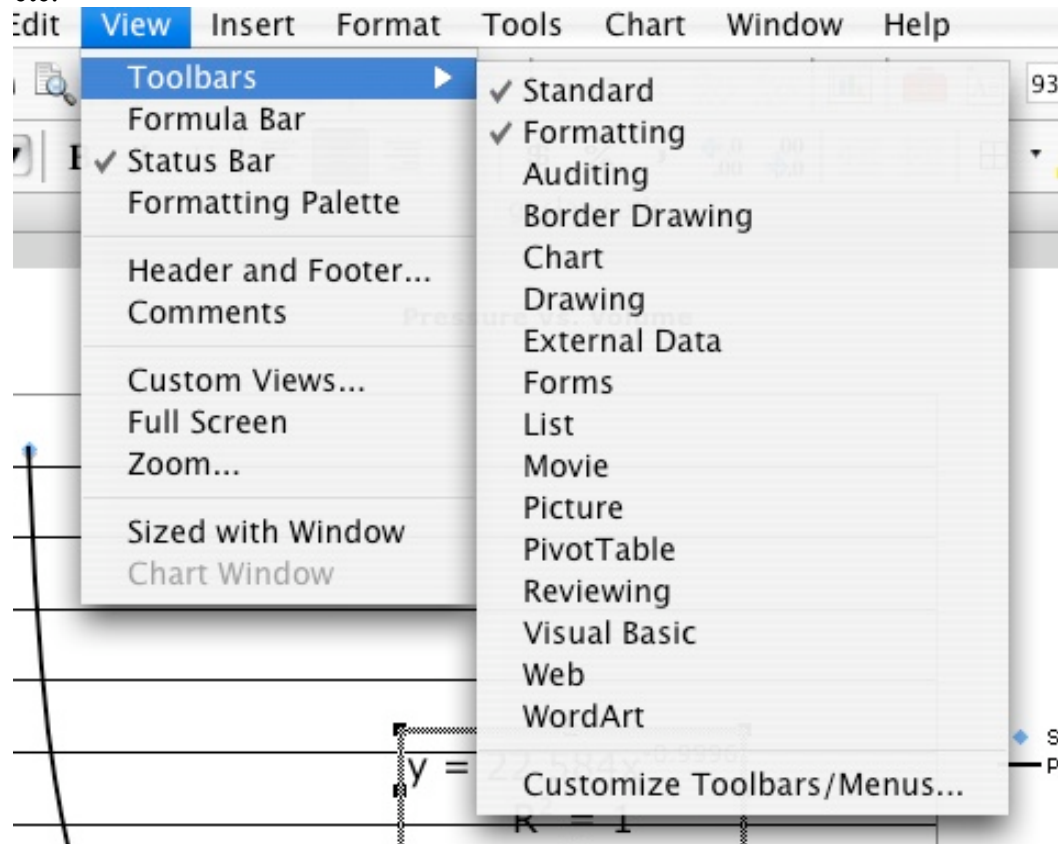
better.

16. Click on the equation and drag it to an area of the graph where you can read it, and enlarge the text.

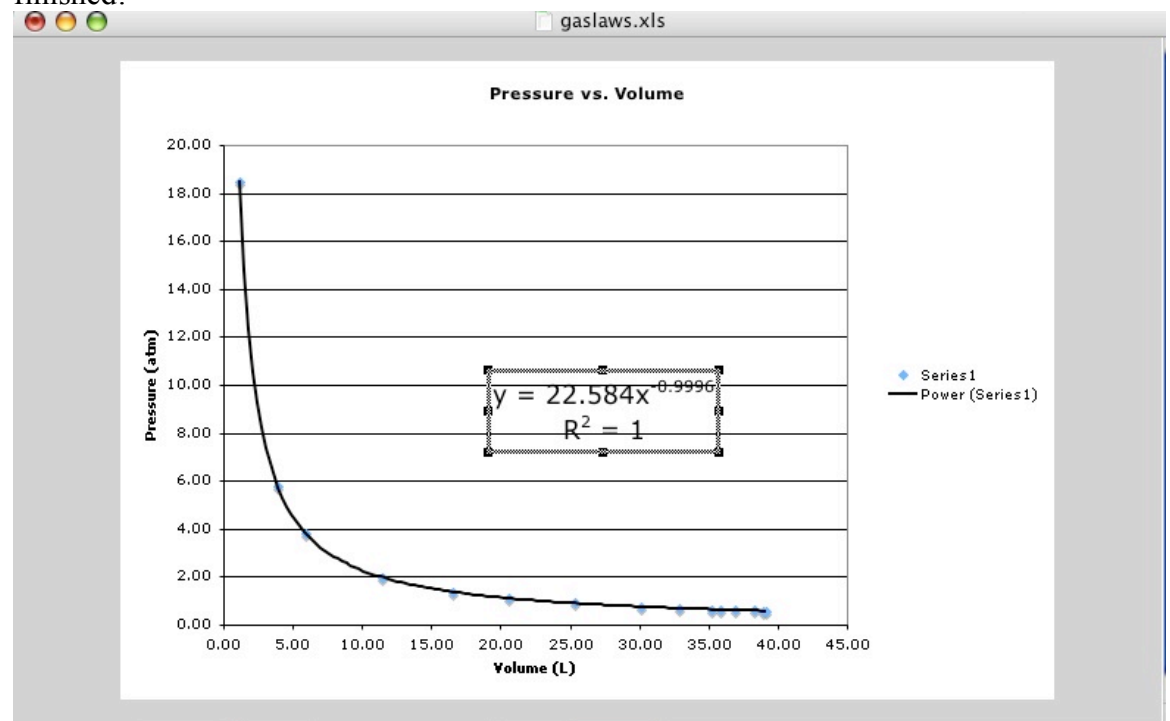


17. Make sure the “Standard” and “Formatting” toolbars are visible so you can enlarge text/change fonts,

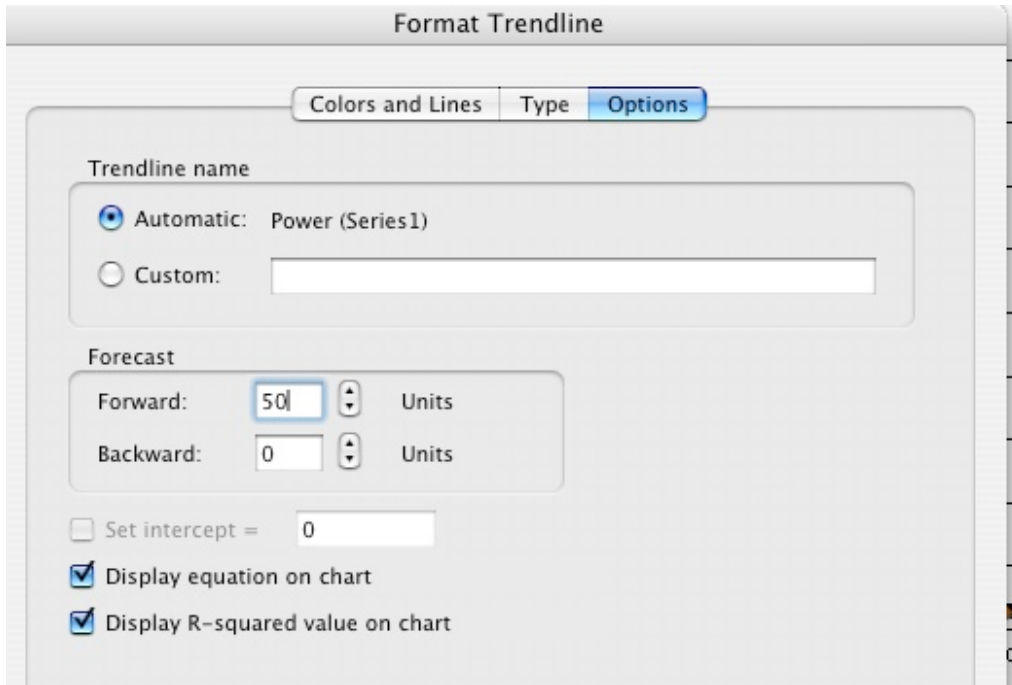
etc.



18. Now your graph is finished!

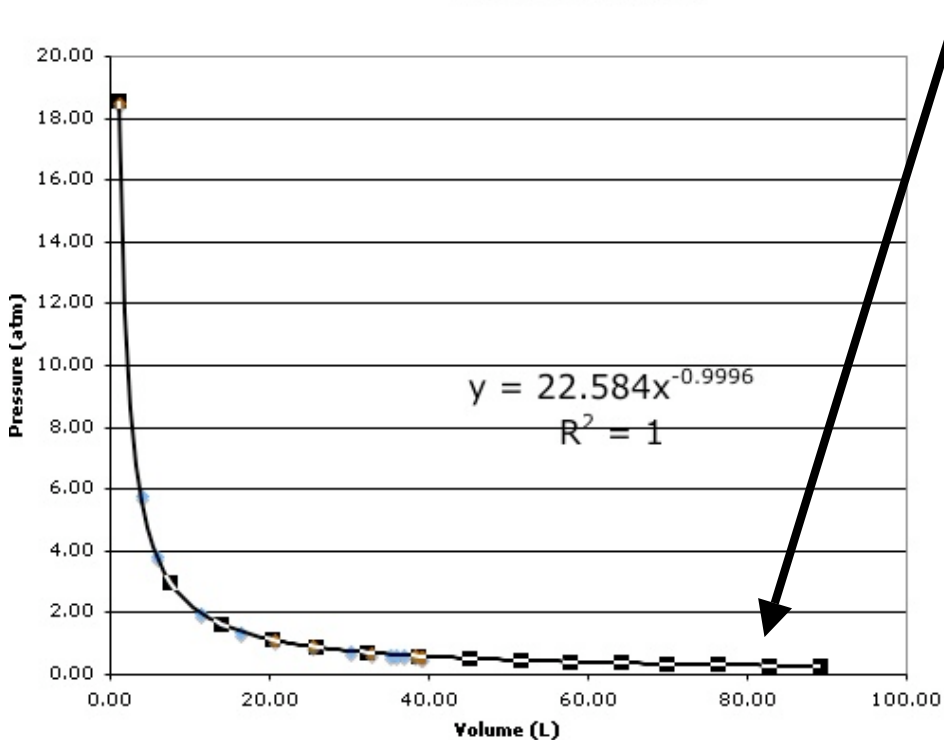


19. If you need to read X or Y values that are off the axes of your graph, you can forecast the trendline on your graph forwards or backwards to reach those values. How to do: Control-click on your trendline and choose "Format Trendline." Then, under "Options," you can forecast forwards or backwards however many units are needed. Then click "OK."



The image shows the "Format Trendline" dialog box with the "Options" tab selected. The "Trendline name" section has "Automatic: Power (Series1)" selected. The "Forecast" section shows "Forward: 50" and "Backward: 0" units. The "Set intercept" checkbox is unchecked with a value of 0. The "Display equation on chart" and "Display R-squared value on chart" checkboxes are both checked.

20. You should then be able to view your graph with the forecasted trendline:
Pressure vs. Volume



21. SAVE your Excel file to your student folder (You must have logged in with your student ID and password first) with a name that reflects the assignment and data, such as “Gas Laws” or “Density Lab.” DO NOT use the default name, which will be “Workbook1.xls” etc., because it doesn’t tell you what your file is all about! Make sure the drop-down box under your file name is opened so you can choose the correct path to your student folder:

